Encoding efficiency of suprathreshold stochastic resonance on stimulus-specific information

Titre	Encoding efficiency of suprathreshold stochastic resonance on stimulus-specific information
Type de publication	Article de revue
Auteur	Duan, Fabing [1], Chapeau-Blondeau, François [2], Abbott, Derek [3]
Pays	Pays-Bas
Editeur	Elsevier
Ville	Amsterdam
Type	Article scientifique dans une revue à comité de lecture
Année	2016
Langue	Anglais
Numéro	1-2
Pagination	33-39
Volume	380
Titre de la revue	Physics Letters A
ISSN	1873-2429
Mots-clés	Encoding efficiency [4], Neuron population [5], Stimulus-specific information [6], Suprathreshold stochastic resonance [7]
Résumé en anglais	In this paper, we evaluate the encoding efficiency of suprathreshold stochastic resonance (SSR) based on a local information-theoretic measure of stimulus-specific information (SSI), which is the average specific information of responses associated with a particular stimulus. The theoretical and numerical analyses of SSIs reveal that noise can improve neuronal coding efficiency for a large population of neurons, which leads to produce increased information-rich responses. The SSI measure, in contrast to the global measure of average mutual information, can characterize the noise benefits in finer detail for describing the enhancement of neuronal encoding efficiency of a particular stimulus, which may be of general utility in the design and implementation of a SSR coding scheme.
URL de la notice	http://okina.univ-angers.fr/publications/ua14172 [8]
DOI	10.1016/j.physleta.2015.09.043 [9]

Liens

[1] http://okina.univ-angers.fr/publications?f[author]=1972
[2] http://okina.univ-angers.fr/f.chapeau/publications
[3] http://okina.univ-angers.fr/publications?f[author]=1973
[4] http://okina.univ-angers.fr/publications?f[keyword]=20425
[5] http://okina.univ-angers.fr/publications?f[keyword]=20426

[6] http://okina.univ-angers.fr/publications?f[keyword]=20423
[7] http://okina.univ-angers.fr/publications?f[keyword]=20424
[8] http://okina.univ-angers.fr/publications/ua14172
[9] http://dx.doi.org/10.1016/j.physleta.2015.09.043